UNIKC Semiconductor

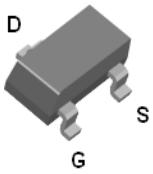
RoHS Compliant

PZ2N7002M

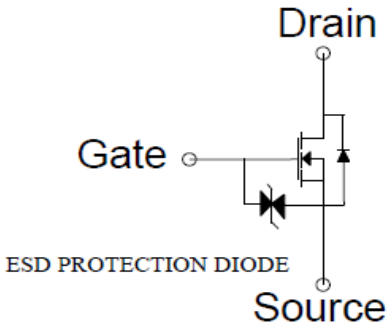
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
60V	2Ω @V_{GS} = 10V	300mA



SOT-23(S)



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±25	
Continuous Drain Current	T_C = 25 °C	I_D	300	mA
	T_C = 100 °C		190	
Pulsed Drain Current[1]		I_{DM}	1	A
Power Dissipation	T_C = 25 °C	P_D	0.35	W
	T_C = 100 °C		0.14	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-40 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		350	°C / W

[1]Pulse width limited by maximum junction temperature.

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ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 100μA	60			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 100μA	1.0	1.8	2.5	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±16V			±30	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 48V, V_{GS} = 0V			1	μA
		V_{DS} = 40V, V_{GS} = 0V , T_J = 125 °C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 10V, V_{GS} = 10V	1			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 3.5V, I_D = 10mA		2.1	5	Ω
		V_{GS} = 4.5V, I_D = 100mA		1.7	3	
		V_{GS} = 10V, I_D = 200mA		1.6	2	
Forward Transconductance[1]	g_{fs}	V_{DS} = 20V, I_D = 200mA		0.18		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		36		pF
Output Capacitance	C_{oss}			10		
Reverse Transfer Capacitance	C_{rss}			6		
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$,V_{GS} = 10V, I_D= 200mA		1.6		nC
Gate-Source Charge[2]	Q_{gs}			0.2		
Gate-Drain Charge[2]	Q_{gd}			1		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 30V I_D = 200mA, V_{GS} = 10V, R_G = 10Ω		30		nS
Turn-Off Delay Time[2]	$t_{d(off)}$			125		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICE (T_J = 25 ˚C)						
Continuous Current	I_S	I_F = 200mA, V_{GS} = 0V			300	mA
Forward Voltage[1]	V_{SD}				1.2	V

[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

[2]Independent of operating temperature.

[3]Pulse width limited by maximum junction temperature.

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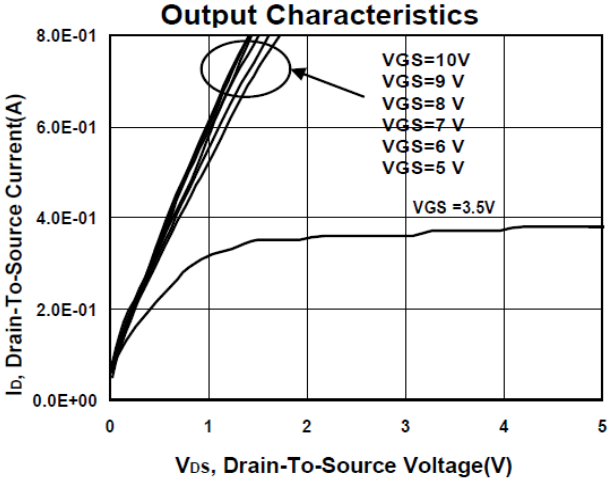
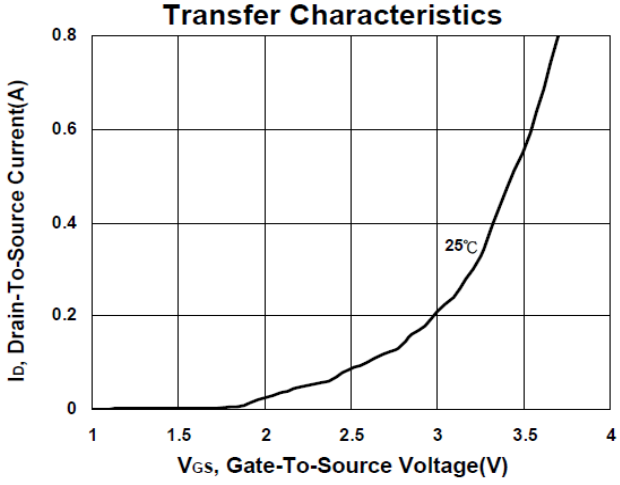
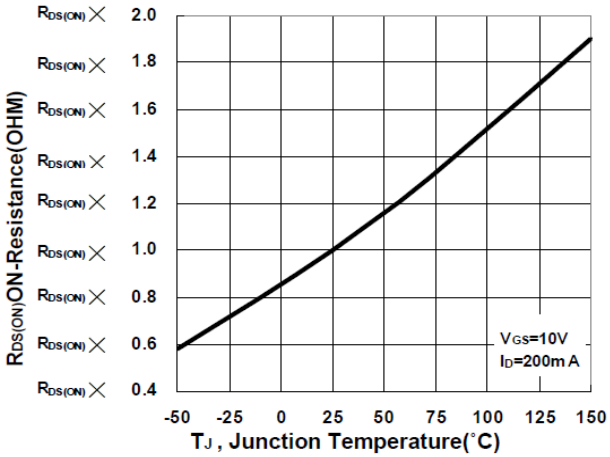
Output Characteristics



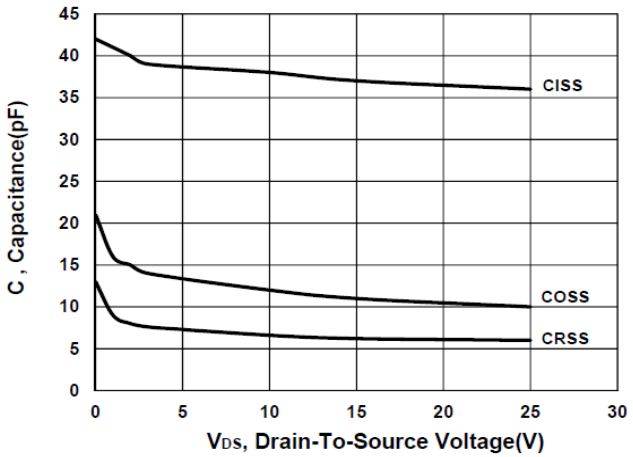
Transfer Characteristics



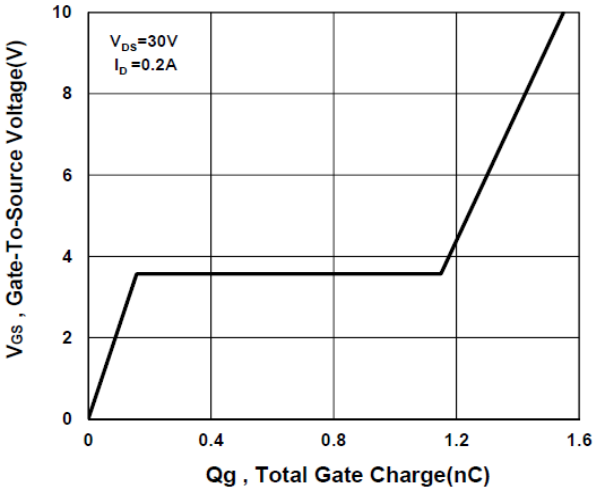
On-Resistance VS Temperature



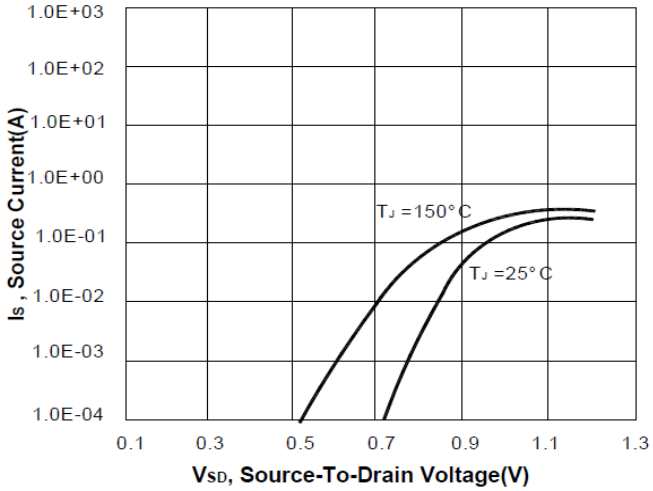
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



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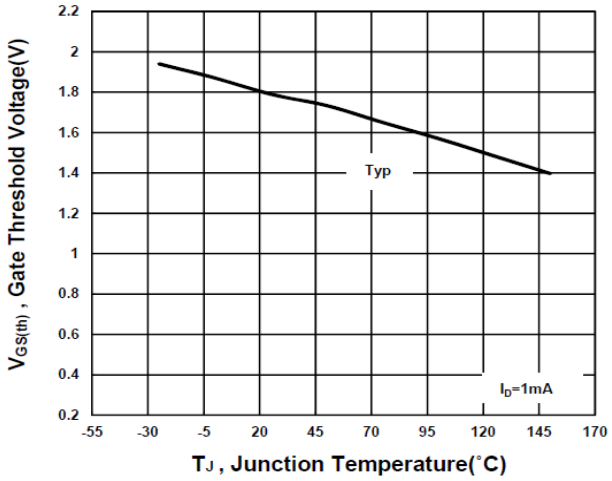
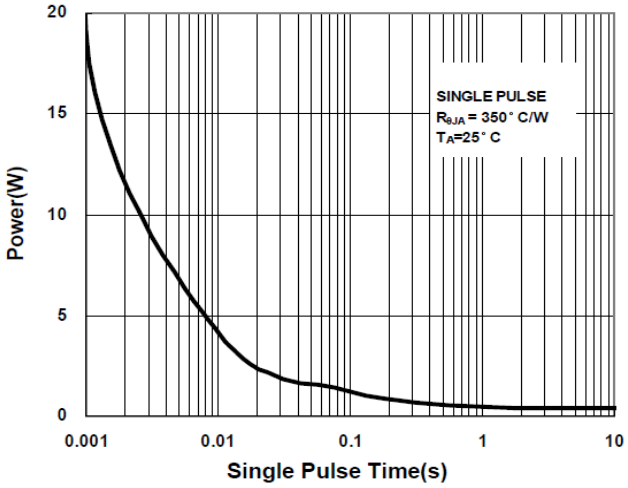
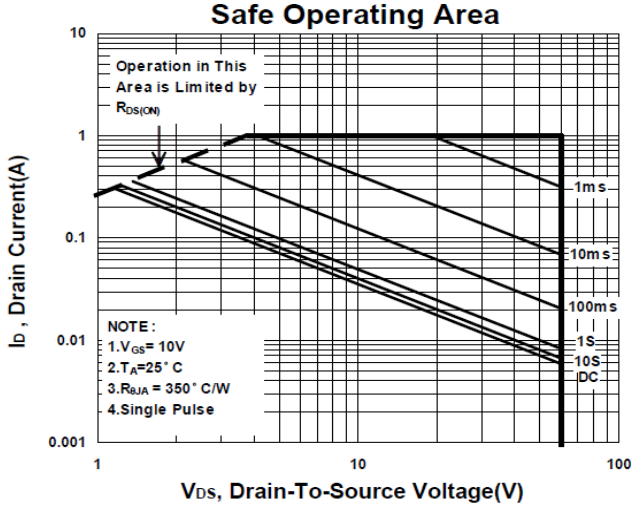
Gate Threshold Voltage VS Temperature



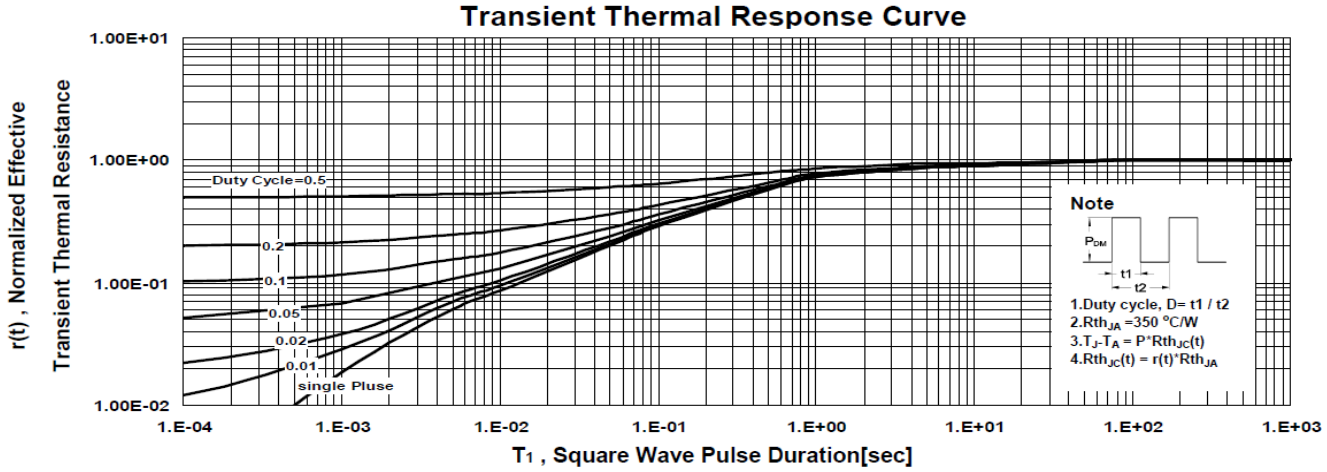
Single Pulse Maximum Power Dissipation



Safe Operating Area



Transient Thermal Response Curve



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Package Dimension

SOT-23 (S) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.9		1	H	0.08		0.2
B	2.25		2.85	I	0.15		0.6
C	1.2		1.4				
D	2.8		3.04				
E	0.89		1.2				
F	0		0.1				
G	0.3		0.5